

Tires Are Largely Vegetable, So Surely They Perish Readily

But Abuses Avoided Would Save More Than \$100,000,000 Annually; Some Words of Good Advice

Rubber tires in the period of one generation have almost completely replaced those made from all other durable materials on bicycles, motorcycles, automobiles and trucks. The demand has been more and more for speed and traction, for greater comfort in riding and for saving of the vehicle and the road, and in response to the demand tire construction has changed and progressed so rapidly the equipment which four years ago averaged 4,000 miles, as constructed at present will render more than double that mileage.

In spite of these marked manufacturing improvements in tire development and in quantity production, improvements that have given a standard product and at the same time reduced its cost 100 per cent to the consumer, the motorist himself has not been able to realize how much additional saving he can add by giving his tires the same intelligent care that he gives to his motor or other parts. The motorist has failed to appreciate that 80 per cent of the materials that go into a high grade pneumatic tire are of a vegetable nature, and consequently perishable, and that the rapidity of perishability depends to a considerable degree on the extent of unnecessary exposure of the tire to deteriorating conditions of moisture, light and heat, as well as avoidable destructive abuses such as cuts, abrasions and ruptures.

A Billion for Tires

Steel tires are practically immune from human abuse, but rubber tires are not, and their careless destruction becomes a world-wide economic loss, with an annual tire bill of considerably more than \$1,000,000,000. By proper care 10 per cent additional tire mileage could be obtained, which, translated, means a yearly upkeep saving of over \$100,000,000. Early failure of tire equipment can be checked and corrected by persistent publicity methods.

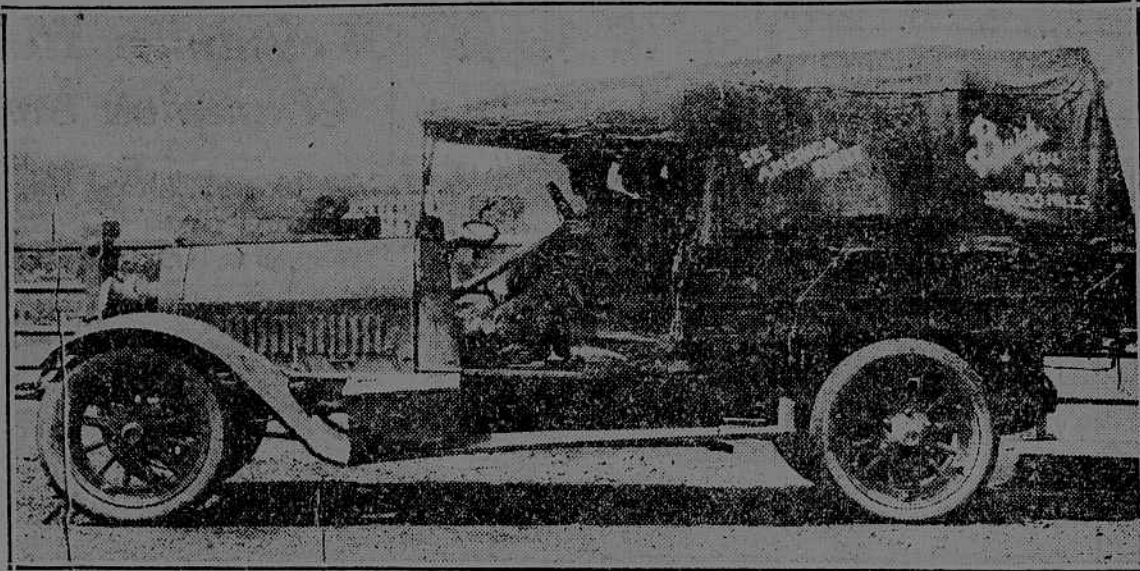
Keeping in mind then that without rubber tires the motor vehicle as we know it to-day could not exist; that the rubber and cotton in tires are a perishable nature and have limits in withstanding abuse; and that by observing some simple precautions, easily within the ability of anyone, tire life can be prolonged 10 per cent—in it not worth while to review the essentials of the care and upkeep of rubber tires?

A majority of pneumatic tire failures take the form of a puncture or a blow-out. Punctures are generally easily understood, since they result from a sharp substance piercing both casing and tube. Well constructed tires of proper size for the car do not puncture easily or frequently. Because of their flexibility cord constructed casings puncture less easily than the square woven fabric type.

Blowouts, on the other hand, may be traceable to a long list of causes. A blowout may occasionally affect only the tube. More often, however, it involves both tube and casing. A blowout or rapid leak in the tube alone is more often the result of a tube pinch, caused by mounting on improper size or dirty rims; by lack of soapstone lubricant, by dirt or rough spots or rupture in the casing; by improperly fitting valve, by folded flap or by catching the tube under the bead.

Reasonable insurance against tube pinching and resulting leak or blow-

Has Traveled 350,000 Miles and Is Still Going



This "prairie schooner," now being displayed at the Buick Broadway sales floor, first saw service in 1914 as a seven passenger touring car in Duluth, Minn., and later it labored as a fire, it was converted into an ice racer. It was finally rebuilt for a service Clark Merritt, who proceeded to overhaul it and convert it into a "motorized prairie schooner" as a part of their plan to see America. They started out on their trip last November, and have

out is to exercise intelligence and select the proper size tube and flap for the casing, keeping the rim in good condition and using care in the assembly and mounting of these units.

What Makes a Blowout

Ordinary blowouts that affect both casing and tube are the result of a weakening in the fabric of the tire carcass. All tires blow out in time if used long enough, but such natural failures come late in tire life. It is the blowout resulting from tire abuse that is costly and that must be avoided if the tire is to render its full service. The most flagrant tire abuses, resulting in premature blowouts in casings, are: Overload, under-inflation, overspeeding, misalignment of wheels, driving in car tracks and ruts, neglected cuts and improper use of anti-skid devices. A brief detailed discussion of each of these major abuses follows:

All tires have a load limit. Constant slight or occasional heavy overloads shorten tire life. To determine accurately the load carried on a vehicle tire, weigh separately the front and rear wheels, and divide each weight by two for the tire load. To this can be added weight figures corresponding to the average front or rear passenger load. The maximum actual tire load should not exceed the maximum load carrying capacity advertised by responsible tire manufacturers.

Proper inflation is as important as proper loads. Tires are not built to take the place of steel springs or of shock absorbers. Under-inflation results in an unnatural flexing of the layers of fabric, which causes separation and early destruction of the tire carcass. If easier riding is desired oversize tires may be used, and such tires, in addition to furnishing extra resiliency, give more traction on rear wheels and supply greater mileage. However, oversizing tires requires a readjustment of the speedometer; otherwise the recorded distance will be less than that actually traveled.

Do not change inflation pressures with changes in atmospheric temperature, since more damage results from endeavoring to compensate for an increase in the tire temperature than is caused by the increase in temperature itself. Avoid running on a flat tire. Such practice ruins the tube and breaks the casing at the head or sidewall.

If you collect automobile racing statistics you will find that the average life of a high grade tire on a racing

car is under 500 miles—which is about one-twentieth of the life of a tire operated under ordinary conditions. This difference in tire service is due directly to a difference in heat developed.

Heat exerts a deteriorating effect on vulcanized rubber in proportion to the intensity and length of time the rubber is exposed to it. The source of heat that does most damage is that produced at high running speed by the internal friction of the tire carcass. The heat developed by frictional contact with the road when traveling rapidly also has some influence. Tires are so designed as to resist the effects of heat produced by ordinary everyday car operation. But tires cannot long remain intact when highly heated by the heat of the road when traveling rapidly, and the results of such practice are rapid loss of elasticity and flexibility, which leads to complete tire carcass break down. From the standpoint of tire life, mechanical upkeep and gasoline economy car speeds should be kept within prescribed limits.

Among the factors which have an intimate relation to tire mileage is wheel alignment. The free rolling motion of a tire is affected by a small wheel misalignment and the result is excessive tread wear. When the two opposite wheels are not parallel there is a diagonal grind at the point where the tires come in contact with the road surface which wears off the rubber almost as fast as if in contact with a curbed wheel.

Checking Up Alignment

Because of the tendency of front wheels to spread during driving car manufacturers set the wheels at a toe-in of from three-eighths to one-half inch, and when thus adjusted the wheels are properly aligned. The measurements showing these differences should be made between the fellows of the two front wheels at points inside and on a level with the axle. Alignment or the toe-in of the wheels should not be confused with dish, which is setting the wheels further apart at the top than at the bottom. Frequent checking wheel align-

ment saves tire wear. It is a factor that should not be neglected.

Rough pavements and crossings tempt the motorist to drive on street car tracks. While it is admittedly true that the occasional use of car tracks where road conditions are almost impassable is justified, it is also true that the strain on certain parts of the tire due to continuous running on car tracks will not only quickly wear a depression in the tread rubber, all around the tire, but the sharp bending action and overload on the fabric directly under this depression will produce eventually an inside fabric break. Running on car tracks is an expensive habit and should be indulged in only in extreme necessity.

A barefoot boy appreciates the need of quick attention to his surface cuts and bruises which, given temporary protection, are self-healing. Tire tread cuts are also self-healing if promptly treated with heat-cut material. If not thus treated the elasticity of the rubber allows the cut to expand under load compression with every turn of the wheel. Dirt, glass, sand and pebbles wear and tear away the rubber until the cut has reached the first layer of tire fabric where the foreign material creeps along and piles up between the tread rubber and carcass forming sand lumps.

Cuts Can Be Avoided

Most cuts are avoidable and the result of tire contact with sharp edges of railway tracks and crossings, with worn horseshoes, broken glass, wheels spinning on wet pavements and in mud holes, and by skidding the tire by sudden brake application.

The remedy is to examine the tires at regular intervals, with the object of removing all penetrating objects, such as nails and tacks; to wash out the holes and cuts and close them by properly prepared feeding preparations. Investment in tires does not end with the original purchase. To the first payment should be added a relatively much smaller but important care investment.

The use of chains or other anti-skid devices is advisable under certain conditions. While a well designed anti-skid tread is, where care in driving is exercised, generally sufficient insurance against slipping on wet pavements and hard surfaced roads, yet there are conditions of ice, mud or deep snow when chains are a necessity, and for such occasions they should be carried as regular equipment.

The Scrap Pile

Comfort in drivink is a matter of clothing as well as of position of steering wheel and soft upholstery. A growing fashion among motorists is to wear knickerbockers when on long trips—and that is a very sensible and convenient sort of clothing.

It is a form of torture to have to drive slowly on a road where unlimited speed is safe and permitted. For instance, with a newly overhauled engine that calls for gentle treatment in the first 400 or 500 miles of running and where a speed of twenty miles an hour is better for the eventual welfare of the engine than some faster rate, to be turned loose on the motor parkway and have car after car flash by is a sort of teaser. However, it is to be observed that a steady twenty-mile-an-hour clip in the course of forty-five miles of the parkway picks up a great many of those that went by in a hurry as they are hung up on the roadside for tire trouble.

The State Highway Department in Pennsylvania has a very good system of announcing each week the roads on which oiling work is to be done. One of the great nuisances of automobile travel is to come upon a road which has been newly treated with oil and which could be avoided if one had had earlier notice. If roads were only treated with oil, that would not be so bad, but most of them are drenched with the binder and every car that goes along for quite a while gets a very generous sprinkling on the running gear and fenders that is difficult to remove. When it is removed a part of the finish usually comes off with it. It would be a good scheme to oil only half the road at a time.

Detroit has put at conspicuous corners on the back streets posts surrounded by occulting lights which we observed first in Jersey City. Another stunt which is new entirely is the park corners in Detroit. In order to mark the care the motorist should take in turning one of these corners there is erected at the center of street intersections an iron mound perhaps eight inches high. Along the sides of this are heavy glass windows and there are electric lights which shine out at night. Thus the motorist can tell by feeling if he runs over this in the day time and can tell by looking where he can make his turn at night.

It is a great relief to ride over the new paving on Fourth Avenue just south of Thirty-fourth street. This rough cobbled surface was a true bone shaker, but now it has been covered with an asphalt surface that makes it a pleasure to ride on. As it should be.

Tire Patch Temporary

Repair Only, To Be Sure

An inside patch after your tire has been entirely cut through by some sharp object is nothing more than first aid, says the B. F. Goodrich Rubber Company. It is by no means a permanent repair.

A temporary patch will usually pull away from the position it originally held and force itself through the break. When inside patches are used an outside emergency band also should be applied, but both removed as quickly as it is possible to get to a tire repair man and have a permanent repair made.

Thousands of tires are prematurely scrapped each year because the necessary repairs have been neglected. Tires injured from blow-outs should be repaired while the injury is small.

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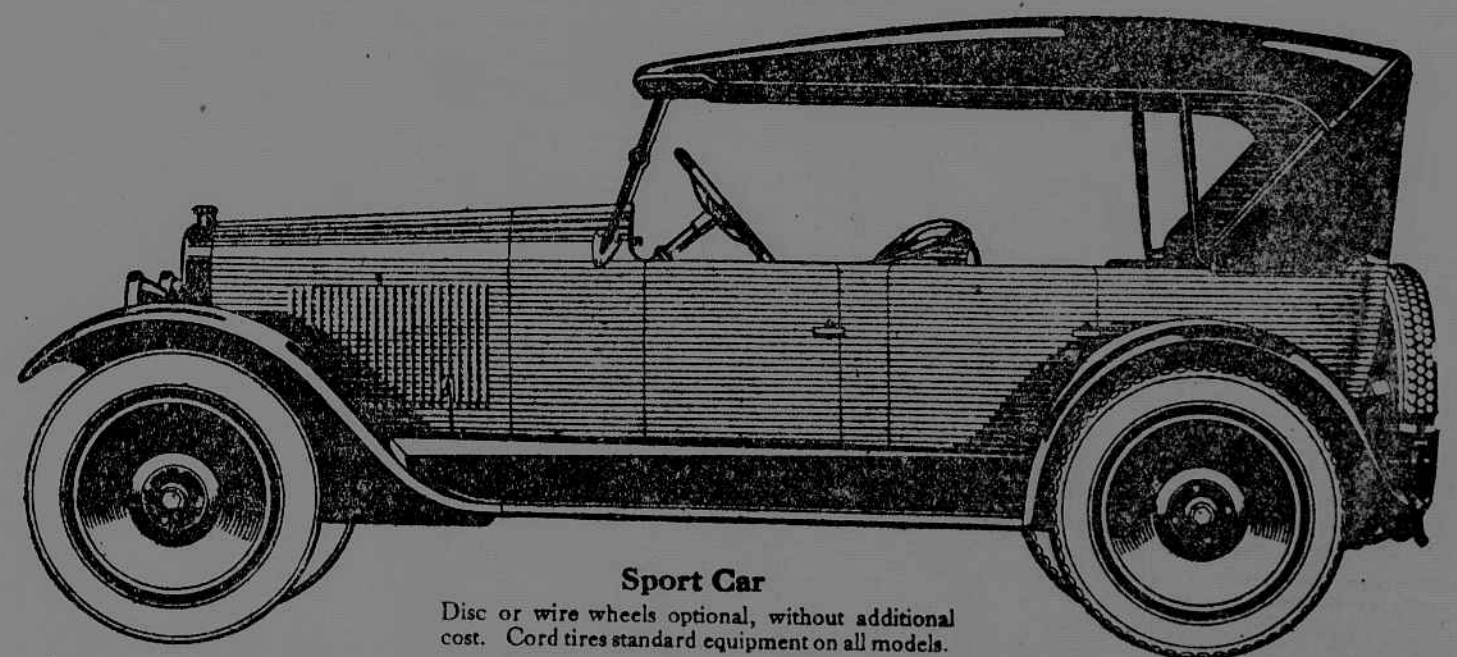
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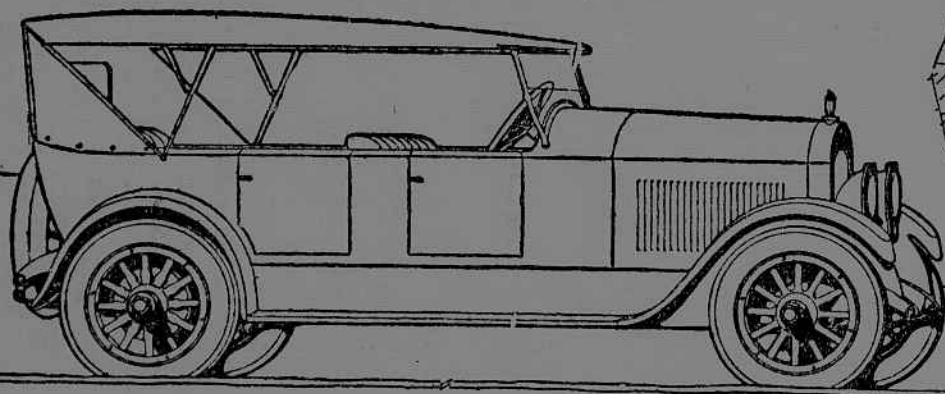
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